

## Intestinal endometriosis: Clinical reflections

Intestinal endometriosis

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### Abstract

**Aim:** In this study aimed to analyze clinical, pathologic and radiological features of intestinal endometriosis in women and evaluate the recurrence and complications after surgery.

**Material and Methods:** Intestinal endometriosis was screened retrospectively in the histopathology reports of female patients who were operated in general surgery and gynecology-obstetrics clinics. Demographic characteristics of the patients, complaints at hospital admission, physical examination findings, laboratory and radiological imaging results were assessed. Surgical indications, surgical procedures, pathology results, follow-up period, complications and recurrence were documented and analyzed.

**Results:** The incidence of intestinal endometriosis (appendix, ileum, rectosigmoid) was 3.08%. Endometriosis was most common in the appendix (72%). The mean age of the patients was 41±9.9 years. The most common symptoms were lower abdominal pain (96%) and nausea (80%). Preoperative leukocytosis was present in 68% of the patients. Computed tomography (CT) was performed in 17 patients, and colonoscopy was performed in 2 patients. Among them, only 4 patients had findings suggestive of endometriosis (rectosigmoid localization). Surgical interventions applied to the patients were appendectomy, hysterectomy, ovarian cystectomy, terminal ileum resection and rectosigmoid low anterior resection. The most common condition was the coexistence of endometriosis and appendicitis. The mean follow-up period was 19.8 months. During this period, endometrioma developed in 2 cases and rectal bleeding in 1 case.

**Discussion:** According to our 15 years findings, intestinal endometriosis is most common in the appendix. Preoperative diagnosis is difficult as intestinal endometriosis may present with a variety of symptoms and conditions (acute/chronic). Most of our cases applied with urgent symptoms and findings. Symptoms were non-specific. The value of CT and colonoscopy in diagnosis is limited. Although it is not seen frequently, it should be considered, especially in cases with pelvic pain and lower abdominal discomfort, and the general surgeon and gynecologist should work together.

### Keywords

Endometriosis; Intestine; Extragenital

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## Introduction

Endometriosis is an important health problem and is defined as the presence of endometrial-like tissue (glands and/or stroma) outside the uterine cavity [1]. Endometriosis affects 10-15% of women of reproductive age and 35–50% of women with pelvic pain or infertility and it is unusual in premenarcheal women and rare in postmenopausal women [2,3]. Endometriosis may present in multiple locations in the pelvis including, the uterus, ovary, pelvic peritoneum, urinary tract, rectum, colon, uterosacral ligaments, rectovaginal septum, vaginal wall, etc. It can also be seen in extra pelvic tissues and organs such as the lungs and liver.

Intestinal endometriosis (IE) accounts for 3–37% of all endometriosis cases [4-6]. IE is usually asymptomatic and is found incidentally during surgery for other conditions. Rectal bleeding or dyschezia may occur if there are endometriotic implants in the lumen of the sigmoid or rectum, but these implants in the small intestine are often asymptomatic [4]. There may be nonspecific symptoms such as nausea, vomiting, diarrhea, constipation, abdominal pain and these symptoms mimic some intestinal disorders such as irritable bowel syndrome, Crohn's disease, ulcerative colitis. The most common site of intestinal endometriosis is the rectosigmoid area (72%). This is followed by the rectovaginal septum (13%), the small intestine (7%), the cecum (3.6%), and the appendix (3%) [5]. Patients with intestinal endometriosis generally have lesions in multiple pelvic locations, so diagnosis is particularly difficult and it is not easy to locate the precise source of complaints. Although several radiologic techniques have been proposed for the diagnosis of IE, there is no gold standard. Transvaginal ultrasonography (TVUSG), computed tomography (CT), magnetic resonance imaging (MRI), or colonoscopy may be performed in the diagnosis of endometriosis.

The aim of this study was to analyze and evaluate the frequency, clinicopathological and radiological features of intestinal endometriosis in female patients undergoing abdominal surgery in a tertiary center, as well as to reveal postoperative recurrence and complications.

## Material and Methods

The study was carried out in a tertiary center, Istanbul Training and Research Hospital, from 2005 to 2019. This is a descriptive retrospective study. The diagnosis of endometriosis was scanned in the histopathology reports of female patients who underwent abdominal operations in general surgery and gynecology clinics. Among them, only intestinal ones were included in the study. The medical records of these cases were analyzed.

Demographic characteristics of the patients, complaints, physical examination findings, laboratory and radiological imaging results were assessed. Patient's age, surgical indications, surgical procedure, pathology results, follow-up period, complications and recurrence were documented. SPSS Statistics 26.0 program was used for statistical analysis. Mean, standard deviation, median, lowest, highest, frequency and ratio values were calculated for descriptive statistics of the data.

## Results

Twenty-five of 812 cases were intestinal endometriosis cases (3.08%). Detailed characteristics of the cases are presented in Table 1. The mean age of the patients was  $41 \pm 9.9$  years. Except for the 74-year-old patient, the remaining patients were between 23 and 52 years old. This elderly patient had an acute abdomen, diameter of the appendix was 18 mm on tomography, laparoscopic appendectomy was performed, and in the histopathology of the appendix, there were acute appendicitis and endometriosis.

Two of our cases were nulliparous and the rest were multiparous. One of them was endometrioma plus terminal ileal endometriosis, and the other rectosigmoid was endometriosis. The most common symptoms were lower abdominal pain (96%) and nausea (80%). Peritoneal irritation findings were common. Preoperative leukocytosis was present in 68% of the patients. Computed tomography was performed in 17 patients. There were signs of appendicitis in 10 cases, and the mean appendix diameter was 11.4 mm. There were ileus findings in 3 patients, and wall thickening and compression and mass in the rectosigmoid in 2 patients.

Twenty of the 25 patients (80%) had an emergency diagnosis; 2/3 of the cases were operated with the diagnosis of acute appendicitis. Surgical interventions applied to the patients were appendectomy, hysterectomy, ovarian cystectomy, terminal ileum resection and rectosigmoid low anterior resection. The laparoscopic intervention was performed in 6 (24%) patients; 72% of the cases had endometriosis in the appendix, 16% in the rectosigmoid and 12% in the terminal ileum. In the same period, 3318 female patients underwent appendectomy, of which 18 patients had endometriosis in their appendectomy specimens (0.54%).

The cases were followed for an average of 19.8 months. During this period, endometrioma developed in 2 cases, and rectal bleeding in 1 case.

## Discussion

Intestinal endometriosis is not a common entity, and its incidence has been reported in the literature as 3-37% [4-6]. Our rate was 3.08%. The most common location of extragenital endometriosis is the gastrointestinal tract [7], and the most common site affected within the gastrointestinal tract is the rectosigmoid junction, followed by the ileum, cecum and the appendix [8,9], respectively. On the contrary, in our cohort, endometriosis is most frequently located in the appendix (72%). Intestinal endometriosis can present with a variety of symptoms, making this diagnosis difficult. Although small endometriotic nodules on the serosal surface rarely cause symptoms, larger nodules may cause pain and a wide range of gastrointestinal symptoms, including diarrhea, constipation, rectal bleeding, abdominal bloating, and abdominal pain [10,11]. Since the presentation of IE can vary widely, it is difficult to make a diagnosis preoperatively. In our study, the most common symptom encountered in patients at admission was lower abdominal pain (96%). Besides that, there were only 4 cases of dysmenorrhea and 1 case of rectal bleeding, which could be considered relatively specific.

**Table 1.** Characteristics of the cases

	Min.-Max.	Median	Mean±SD	n (%)
Age (year)	23-74	42	41±9.9	25
Sign and Symptoms				
Lower abdominal pain				24 (96)
Nausea				20 (80)
Vomiting				14 (56)
Dysmenorrhea				4 (16)
Abdominal tenderness				21 (84)
Defense				13 (52)
Rebound				15 (60)
Rectal bleeding				1 (4)
WBC (preop.) (normal range 4320-10200)	4220-22010	11730	11842.8±3452.5	
Imaging				
CT				17
signs of appendicitis, (+)				10 (58.8)
signs of appendicitis, (-)				2 (11.8)
appendix diameter (mm)	6-18	11	11.4±3.9	
signs of ileus				3 (17.6)
rectosigmoid wall thickening and mass				2 (11.8)
Colonoscopy				2
Preoperative diagnosis				
Acute appendicitis				17 (68)
Ileus				3 (12)
Adnexal mass				2 (8)
Endometrioma+Subileus				1 (4)
TOA (tuboovarian abscess)				1 (4)
Rectosigmoidal endometriosis				1 (4)
Surgical procedure				
Appendectomy				12 (48)
L/S Appendectomy				4 (16)
L/S Appendectomy+ ovarian cystectomy				1 (4)
Appendectomy+ TAH+BSO				1 (4)
Bridectomy+Terminal ileum resection				2 (8)
Rectosigmoid low anterior resection+ TAH+BSO				2 (8)
Rectosigmoid L/S low anterior resection				1 (4)
Rectosigmoid low anterior resection				1 (4)
Terminal ileum resection+ ovarian cystectomy				1(4)
Pathology				
Acute appendicitis and endometriosis				16 (64)
Acute appendicitis and endo- metriosis +endometrioma				1 (4)
Chronic appendicitis and endometriosis				1 (4)
Rectosigmoidal endometriosis				2 (8)
Rectosigmoidal endometrio- sis+ adnexial endometriosis				2 (8)
Terminal ileal endometriosis				2 (8)
Terminal ileal endometriosis +endometrioma				1 (4)
Follow-up (month)	1-96	8	19.8±25.7	
Recurrence / complication				
Endometrioma				2
Rectal bleeding-ulceration				1

\*WBC: white blood cell, CT: computed tomography, L/S: laparoscopy, TAH+BSO: total abdominal hysterectomy and bilateral salpingooferectomy

Intestinal endometriosis is difficult to diagnose before surgery because it mimics various bowel diseases [12]. Only 2 of our cases had a preoperative diagnosis associated with endometriosis. Most of our cases were patients with emergency diagnosis. The patients with intestinal endometriosis often have lesions in multiple pelvic locations, and since it is not easy to locate the precise source of complaints, imaging techniques are mandatory. CT and colonoscopy have limited value in the diagnosis, because the disease spreads inward from the serosa and in most cases, the mucosa remains unaffected. CT can reveal intestinal wall thickening in large lesions [12]. However, CT has a high diagnostic value in acute conditions (such as acute appendicitis, ileus). Acute disease was diagnosed in 15 of our 17 cases with tomography (88%). MRI is one of the most commonly used techniques for IE. The sensitivity and specificity of MRI in detecting pelvic endometriosis is about 90%. Only 2 of our cases had MR imaging. One of them was an endometrioma plus ileal mass, and the other was a rectosigmoid mass. TVUSG can detect the presence of pelvic endometriosis with high accuracy (sensitivity, 83%; specificity, 94%) and help predict the infiltration depth of nodules in the intestinal wall [12]. In our series, TVUSG was applied in 4 cases with gynecological indications and 1 case of rectosigmoid mass. MRI plus TVUSG is recommended for patients with IE [12].

Although colonoscopy is of little use in the diagnosis of intestinal endometriosis, because infiltration of the lesion into the mucosa is rare [13], the scarcity of mucosal involvement makes colonoscopy more useful in excluding other diagnoses rather than confirming the diagnosis of IE. Preoperative colonoscopy was performed in two of our cases, and these were cases with dysmenorrhea and rectal bleeding.

Surgical treatment of intestinal endometriosis remains controversial. In the presence of obstructive symptoms and acute situations, surgery is mandatory. However, in the absence of obstruction or acute situations, it remains unclear whether surgery should be performed. Surgical removal of intestinal endometriosis appears to be the most effective treatment in severely symptomatic patients. Several studies have demonstrated that surgical removal of all endometriotic lesions, including those in the bowel, is associated with a significant improvement in gastrointestinal symptoms and quality of life [7,14]. On the other hand, surgical treatment of intestinal endometriosis is associated with a significant rate of complications. A recent systematic review revealed a 6.3% rate of major complications following bowel endometriosis resection, including fistula, transient urinary retention and anastomotic leakage (2.7%, 3.5%, and 0.8% of cases, respectively) [15]. In our study, endometrioma developed in 2 cases after an average of 29 months after treatment, and rectal bleeding from the intestinal anastomosis site occurred in 1 case.

When surgery is required, several surgical approaches and techniques can be used. Surgical approach (laparoscopic, abdominal, vaginal, or combined) and surgical procedure (e.g. mucosal skinning, nodulectomy, full thickness disc resection, and segmental resection, bowel resection, transanal intussusception) are determined by the location

and extent of endometriotic bowel lesions and by surgeons' experience [5-9,14-16]. Although the indications for colorectal resection are limited, aggressive surgery improves quality of life [8,14]. The most common intestinal surgical procedures in our cases were appendectomy, rectosigmoid low anterior resection and terminal ileum resection, respectively. The cases undergoing bowel resection had severe wall infiltration and lumen narrowing. However, depending on the accompanying gynecological condition, interventions such as cystectomy and hysterectomy are also performed.

Bong et al reported recurrence and reoperation for pelvic endometriosis (bilateral salpingo-oophorectomy) in 1 patient 39 months after bowel surgery for intestinal endometriosis [12]. Several authors have previously reported that the recurrence risk increases if the lesions are not completely removed during the first surgery, and generally, recurrence occur at the same location [17,18]. Voiding difficulties and sexual dysfunction have also been reported after surgical treatment for rectal endometriosis [19]. Although some authors have reported complications related to anastomosis including rectovaginal fistula, anastomotic leakage, or pelvic abscess. Our patients did not experience such major complications. Postoperative follow-up revealed endometrioma in 2 (8%) of our patients, rectal superficial mucosal ulcer and bleeding in 1 (4%). Endometriomas were operated, and conservative treatment was applied for rectal bleeding.

In the present study, we aimed to reveal our 15-year clinical experience of intestinal endometriosis. Limitations of our study are retrospective analysis and the inability to access digital radiological images of some patients. Contrary to the literature, most of our cases were patients requiring emergency intervention. Again, unlike the literature, endometriosis was in the appendix. Preoperative diagnosis of IE can guide management. However, it is difficult to diagnose before surgery. Since IE is a relatively rarely seen entity, careful analysis of clinicoradiologic features will help diagnosis and treatment and follow-up strategies. Since genital endometriosis may also be present in cases of IE, the general surgeon and gynecological surgeon should work together, especially in patients in the reproductive period.

#### Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

#### Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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#### Conflict of interest

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